

REMARKS

In the Office Action, the Examiner objected to claims 18, 20, and 73, and rejected claims 1-17, 19-44, 56-72, and 74-85. By this paper, Applicants cancel claims 2, 20, 29, 31, 43, 57, 74-81, and 84, amend claims 1, 3, 4, 6, 8-10, 18, 19, 21, 23, 25-27, 30, 32, 35, 37-39, 41, 42, 44, 56, 58, 59, 61, 63-65, 73, 82, 83 and 85, and add new claims 86-111. No new material is introduced by way of these amendments or new claims. Upon entry of the amendments and new claims, claims 1, 3-19, 21-28, 30, 32-42, 44, 56, 58-73, 82-83, and 85-111 will be pending in the present patent application. Reconsideration of the application as amended is respectfully requested.

Allowable Subject Matter

In the Office Action, the Examiner indicated that claims 18, 20, and 73 are “objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” Office Action, page 6. Applicants would like to thank the Examiner for indicating allowable subject matter.

Applicants have amended claim 19 to include the subject matter of claim 20 indicated by the examiner as allowable. Furthermore, analogous amendments have been made to bring the equivalent subject matter into independent claims 1, 30, 41, 56, and 82. The amendments are discussed in detail in the relevant sections below, and are believed to place the claims in condition for allowance.

Claim Rejections Under 35 U.S.C. § 102

In the Office Action, the Examiner made the following rejections under 35 U.S.C. § 102:

- Rejection of claims 1, 4, 5, 7-17, 19, 21, 22, 24-28, 30, 33, 34, 36-42, 44, 56, 59, 60, 62-72, 74, 77, 78, and 80-83 as being anticipated by Stowe II et al., U.S. Publication No. 2002/0160919 (hereafter referred to as “Stowe”);
- Rejection of claims 56, 57, 62, 64, 65, 71, 72, 74, 75, and 80-84 as being anticipated by ViviPrint 540 Homopolymer – Technical Data Sheet – date uncertain (hereafter referred to as “the ViviPrint Reference”);

- Rejection of claims 1, 7-10, 14-17, 19, 24-28, 30, 36-42, 56, 57, 62-65, 69-72, and 74-82 as being anticipated by Maroy et al., U.S. Patent No. 6,586,371 (hereafter referred to as “Maroy”);
- Rejection of claims 56, 57, 64-70, 72, 74, 75, and 80-84 as being anticipated by Nohr et al., U.S. Publication No. 2002/0149656 (hereafter referred to as “Nohr”);
- Rejection of claims 56-58, 62-72, 74-76, and 80-84 as being anticipated by Maitra et al., U.S. Patent No. 5,874,111 (hereafter referred to as “Maitra”); and
- Rejection of claims 41 and 82 as being clearly anticipated by Jiminez et al., U.S. Patent No. 6,579,832 (hereafter referred to as “Jiminez”) or Baran et al., U.S. Patent No. 7,033,975 (hereafter referred to as “Baran”).

Applicants respectfully traverse these rejections.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *See Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir.1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *See In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir.1990).

Stowe does not disclose polyvinyl pyrrolidone nanoparticles.

The Examiner rejected claims 1, 4, 5, 7-17, 19, 21, 22, 24-28, 30, 33, 34, 36-42, 44, 56, 59, 60, 62-72, 74, 77, 78, and 80-83 as being anticipated by Stowe, stating that “Stowe teaches a drilling fluid and method of drilling in which nanoparticle sized latex, including natural latex and styrene-butadiene copolymers, is used to treat shale.” Office Action, page 2.

Independent claims 1, 19, 30, 41, 56, and 82 have been amended to recite “a *polyvinyl pyrrolidone* nanoparticle source.” (Emphasis added.) In contrast, Stowe discloses a formulation containing a “submicron polymer latex,” which is “preferably a carboxylated styrene/butadiene copolymer.” *See* Stowe, paragraphs [0022], [0024]. While Stowe does disclose a list of other polymers that may be used, the list does not include polyvinyl pyrrolidone. *See id.* paragraph [0024]. Thus, Applicants respectfully assert that Stowe does

not disclose all of the features of independent claims 1, 19, 30, 41, 56, and 82, and cannot anticipate these claims. Furthermore, Applicants note that the amendment of claim 19 discussed above incorporates the subject matter of claim 20, indicated by the Examiner to be allowable.

Accordingly, Applicants believe that independent claims 1, 19, 30, 41, 56, and 82, and their respective dependent claims, are allowable over Stowe and respectfully request that the Examiner withdraw the rejection under 35 U.S.C. § 102.

The ViviPrint reference does not disclose a functional drilling fluid.

The Examiner rejected claims 56, 57, 62, 64, 65, 71, 72, 74, 75, and 80-84 as being anticipated by the ViviPrint Reference, stating that “ViviPrint teaches a nanometer source of polyvinylpyrrolidone at a concentration of 10% in water. Applicants intended use as a drilling fluid does not distinguish (In re Pearson 181 USPQ641).” Office Action, p. 3.

Independent claims 56 and 82 have been amended to recite “wherein the drilling fluid is formulated for use in drilling in a subterranean formation.” This limitation may encompass a large number of additives for formulating a functional drilling fluid. Exemplary additives are listed in the specification and may include antifoams, biocides, bridging agents, corrosion control agents, dispersants, flocculants, fluid loss additives, foamers, H₂S scavengers, lubricants, oxygen scavengers, scale inhibitors, viscosifiers, or weighting agents, among others. See Specification, paragraph [0027].

In contrast, the ViviPrint reference does not disclose a drilling fluid “formulated for use in drilling in a subterranean formation,” as recited in independent claims 56 and 82. Rather, the ViviPrint reference discloses only one ingredient that may be used in a drilling fluid. However, it does not disclose any of the other ingredients necessary for formulating a functional drilling fluid. Thus, the ViviPrint reference does not disclose all of the elements of claims 56 and 82 and cannot anticipate these claims.

Accordingly, Applicants respectfully assert that claims 56 and 82, and their respective dependant claims, are allowable over the ViviPrint reference and request that the Examiner withdraw the rejection under 35 U.S.C. § 102.

Maroy does not disclose polyvinyl pyrrolidone nanoparticles.

The Examiner rejected claims 1, 7-10, 14-17, 19, 24-28, 30, 36-42, 56, 57, 62-65, 69-72, and 74-82 as being anticipated by Maroy, stating that “Maroy teaches a drilling fluid which comprises a nanoparticle silica and polyvinylpyrrolidone which is used as a drilling fluid (see column 2, lines 1-3 and Example 12). Applicant’s broad teaching of a ‘nanoparticle source’, does not necessitate that the polyvinylpyrrolidone is the nanoparticle.” Office Action, p. 3.

As discussed above, independent claims 1, 19, 30, 41, 56, and 82 have been amended to recite “a *polyvinyl pyrrolidone* nanoparticle source.” (Emphasis added.) In contrast, Maroy discloses a formulation containing silica nanoparticles coated with associated polymer layers. See Maroy, column 1, line 60-column 2, line 3. To the extent Maroy may disclose polyvinyl pyrrolidone, the polyvinyl pyrrolidone is a polyacrylamide/polyvinylpyrrolidone (PAA/PVP) copolymer that is merely adsorbed onto the surface of the silica nanoparticles and is not, itself, in the form of nanoparticles. See *id.* col. 1, lines 64-67; col. 2, lines 33-34. Thus, Maroy does not disclose all of the elements of claims 1, 19, 30, 41, 56, and 82 and cannot anticipate these claims.

Accordingly, Applicants respectfully assert that claims 1, 19, 30, 41, 56, and 82, and their respective dependent claims, are allowable over Maroy and request that the Examiner withdraw the rejection under 35 U.S.C. § 102.

Nohr does not disclose polyvinyl pyrrolidone nanoparticles.

The Examiner rejected claims 56, 57, 62, 64-70, 72, 74, 75, and 80-84 as being anticipated by Nohr, stating that “Nohr teaches a fluid which comprises water, a silica-polyvinylpyrrolidone nanoparticle and sodium chloride (see example 30). The salt would also act as a weighting agent, as in claim 69. Applicants intended use as a drilling fluid does not distinguish (In re Pearson 181 USPQ 641).” Office Action, p. 3-4.

As discussed above, independent claims 56 and 82 have been amended to recite: “a *polyvinyl pyrrolidone* nanoparticle source.” (Emphasis added.) In contrast to this limitation, Nohr discloses an ink formulation that contains silica nanoparticles treated with a low molecular weight polyvinyl pyrrolidone. See Nohr, page 19, paragraph [0141]. The polyvinyl pyrrolidone in Nohr is not in the form of nanoparticles, as recited in claims 56 and 82. Thus, Nohr does not disclose all of the elements of claims 56 and 83 and cannot anticipate these claims.

Accordingly, Applicants respectfully assert that claims 56 and 82, and their respective dependent claims, are allowable over Nohr and request that the Examiner withdraw the rejection under 35 U.S.C. § 102.

Maitra does not disclose a functional drilling fluid

The Examiner rejected claims 56-58, 62-72, 74-76, and 80-84 as being anticipated by Maitra, stating:

Maitra teaches a fluid which is made by crosslinking and polymerizing polyvinylpyrrolidone. Such may be either in water or hexane, and a calcium chloride salt may be added to the aqueous dispersion of crosslinked polymer in water (see Example 1). The calcium chloride is also a weighting agent. Applicants intended use as a drilling fluid does not distinguish.

Office Action, page 4.

As discussed above with respect to the ViviPrint reference, independent claims 56 and 82 have been amended to recite: “wherein the drilling fluid is formulated for use in drilling in a subterranean formation,” thereby encompassing a number of additives that may be used to formulate a drilling fluid. In contrast, the solution disclosed in Maitra is not formulated for use in drilling in a subterranean formation. Furthermore, the calcium chloride added to the solution in Maitra is not a stable component of a final solution, but is merely used as an intermediate reactant to precipitate another component from the solution. See Maitra, column 4, lines 52-55; FIG. 2. Thus, Maitra does not disclose all of the elements of claims 56 and 82 and cannot anticipate these claims.

Accordingly, Applicants respectfully assert that claims 56 and 82 are allowable over Maitra and request that the Examiner withdraw the rejection under 35 U.S.C. § 102.

Neither Jimenez nor Baran disclose polyvinyl pyrrolidone nanoparticles.

The Examiner rejected claims 41 and 82 as being anticipated by Jimenez or Baran, stating “see the abstracts.” Office Action, page 2. Applicants respectfully note that it is not proper to base a rejection on an abstract, without further reference to the underlying text of the document. *See* M.P.E.P. § 706.02(II). However, the issue is moot in this case, as the rejection is obviated by the amendments discussed below.

Both claims 41 and 82 have been amended to recite: “a *polyvinyl pyrrolidone* nanoparticle source.” (Emphasis added.) In contrast to this limitation, Jimenez discloses a drilling fluid containing “superparamagnetic nanoparticles.” *See* Jimenez, column 1, lines 51-54. The superparamagnetic nanoparticles comprise “Group VIII metals, Cd, Au, and their alloys. *Id.* column 3, lines 31-33. Indeed, no polymeric particles are disclosed by Jimenez. Furthermore, Baran discloses “surface-modified nanoparticles,” made from inorganic particles. *See* Baran, column 6, lines 6-17. These particles are coated with an organic material to form the final foaming additive. *See id.* column 4, lines 53-55. Indeed, polyvinyl pyrrolidine is not disclosed by Baran at all, either as a particle or as a coating. Thus, neither Jimenez nor Baran disclose all of the elements of claims 41 and 82 and cannot anticipate these claims.

Accordingly, Applicants respectfully assert that claims 41 and 82 are allowable over Jimenez or Baran and request that the Examiner withdraw the rejections under 35 U.S.C. § 102.

Claim Rejections Under Provisional Obviousness-Type Double Patenting

In the Office Action, the Examiner made the following rejections:

- Rejection of claims 1-12, 14, 17, 19-44, 56-67, 69, 72, and 74-85 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 11/183,122; and
- Rejection of claims 1-12, 14, 17, 19-44, 56-67, 69, 72, and 74-85 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 11/183,113.

Applicants submit that the nonstatutory double-patenting rejections over copending Application No. 11/183,122 and copending Application No. 11/183,113 are improper because both of these applications were filed after February 11, 2004—the filing date of the present application. *See* M.P.E.P. § 804(B). Copending Application No. 11/183,122 was filed on July 15, 2006, while copending Application No. 11/183,113 was filed July 15, 2006. As such, Applicants believe that issuance of a patent on the present application would not result in the unjustified or improper timewise extension of the right to exclude granted by the copending applications, and thus the judicially created doctrine of nonstatutory obviousness-type double patenting does not apply. *See* M.P.E.P. § 804(B). Accordingly, Applicants respectfully request withdrawal of the double-patenting rejections and an indication of allowance for claims 1-12, 14, 17, 19-44, 56-67, 69, 72, and 74-85.

New Claims

New claims 86-111 have been added to further claim the material indicated as allowable by the Examiner. These claims add no new matter, and are believed to be allowable for at least the reasons discussed above.

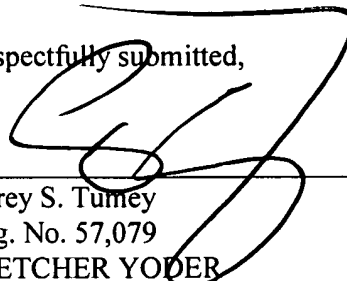
Payment of Fees

No fees are believed due at this time. If fees, including fees for extensions of time and other reasons, are deemed necessary to advance prosecution of the present application, at this or any other time, Applicants hereby authorize the Commissioner to charge such requisite fees to Deposit Account No. 06-1315; Order No. HLBT:0014.

Conclusion

For the reasons discussed above, Applicants respectfully request withdrawal of the objections, and allowance of all pending claims. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'Corey S. Turney', is written over a horizontal line.

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